

The rooms on the ground floor on the right of the picture are sick-rooms for isolating cases of infectious illness. On the opposite side are the caretaker's rooms. The floors in the dining room, corridors, and passages are laid with Turazza mosaic. The whole of the building is lighted by gas and heated by hot-water pipes and it is practically fire-proof.

#### MR. MACKELLAR.

The Frogmore gardens are under the care of Mr. Archibald MacKellar, who was appointed head gardener there in succession to Mr. Owen Thomas after the accession of King Edward VII. in 1901. Mr. MacKellar, whose portrait is reproduced, was born in Argyllshire, his father being also a gardener. He served his apprenticeship in the garden then under his father's care, and afterwards removed to Hopetoun, the Earl of Hopetoun's seat in Linlithgow, in 1870. On completing two years at Hopetoun he removed to Tynninghame and became foreman out-of-doors. In 1874 he was engaged at Chatsworth in the fruit department, and two years later went to Lord Penrhyn's garden at Penrhyn Castle as general foreman. Mr. MacKellar stayed at Penrhyn seven years, and then removed to Floors Castle, the seat of the Duke of Roxburghe, near Kelso, to take up his first position as head gardener. It was after spending 11 years at Floors Castle that he was selected to become head gardener to the King (then Prince of Wales) at Sandringham, Norfolk. After the accession of King Edward, Mr. MacKellar was appointed to the Royal Gardens, Frogmore.

A view of the gardener's house is given. It is a very attractive building, erected in 1844, and is situated in a central position in the garden.

#### ROSE HYBRIDISATION.

(A Paper by Alex. Dickson, Newtown ands, Ireland. Read before the American Rose Society.)

##### A NEW IDEAL.

In the early eighties, when we began to see the results of our labours, we abandoned the original basis of our experiments, namely, the fertilisation of the better varieties of Hybrid Remontant or Perpetual, and began a series of cross-pollination between the Hybrid Perpetual and Teas and Austrian Briars, and then using the results of this first cross in a systematic course of in-breeding. The main object which we had in view was to produce varieties of roses at once vigorous in their habits, con-

tinuous in their bloom, at the same time retaining the absolute essentials of all good roses, namely, beauty of colour, perfection of form, and delicacy of perfume. It was, of course, a great ambition, and how we have succeeded we must leave the world to judge. Broadly, I would say that such success as has attended our labours is due far more to the careful selection than to any

use, either for further fertilisation or for commerce, about 5 per cent. of the seedlings raised. To appreciate the labour this entails upon the hybridiser, one must follow the rose from the hip until it reaches maturity. In hybridisation, carried out upon a systematic plan such as ours, it means that the plants with which we are working have to be specially selected, planted and

it is interesting to note the wide differences in the period of germination in the different cases. In some instances the seed will germinate in two or three months, and in others I have known it to lie dormant for twelve to fifteen months. (I have never been able to give any reason why this should be so, and particularly why there should be marked differences in the periods of germination in seeds taken from the same hip, yet there is very frequently a marked difference.) To continue on this point I am making, it takes anywhere from three to six months, according to the vigour of the plant, to bring it to such amount of growth as will enable us to bud it for the purpose of testing outside. Then, when it is budded of course it takes a full year to bring the plant to maturity. Here, again, one has to face uncertainties, and to be very careful about forming a judgment, as experience has proved time and again that, in the early stages of culture, some varieties have displayed the greatest shyness in flowering, and yet, after a few years' cultivation, have taken their places in the front rank as perfect garden roses, blooming with the greatest freedom. Each year we are compelled to make a very close selection and to discard every seedling which does not suggest some improvement in at least one or two of the essential elements of the perfect rose, otherwise we would, of course, have been flooded out with varieties which would have been of no practical value to us, or, indeed, to the rose world at large.

System in Crossing.—The system we ultimately adopted was hybridisation in the first instance between hybrid perpetual and teas, and then inbreeding from their offspring upon the following lines:—We made four distinct crosses. We took a seedling of our own which gave some evidence of possessing at least some of the qualities aimed at, and, in the first instance, this seedling was crossed with the male parent; secondly, the seedling crossed with the female parent; thirdly, the male parent crossed with the seedling; fourthly, the female parent crossed with the seedling. As soon as we were able to form an opinion of the results of this inter-breeding, we again made a selection of those most closely approaching our ideal, again in-breeding, but with this difference, that we only made use of a limited number of parents, but in almost every instance making a double cross. For example, if we made a seedling with, say, Marie Van Houtte, as the male parent, then during that season we reversed the cross, making Marie Van Houtte the seed-bearing parent, and the seedling the male parent. We always had relays of plants prepared in duplicate for this purpose, and we carefully and methodically registered each experiment, thus carrying on our work in a systematic manner, the system of selection, of course, always playing the most prominent part in the results. From practical experience we were able to ascertain which varieties or, rather, types, gave us the best results, and we were therefore able, to a considerable extent, to lessen the waste, and to reduce our methods to a system containing at least some elements of certainty. We, of course, have made use of varieties of other raisers where we have been struck by any special feature which they contained, which was in our opinion an advance upon anything in commerce.

Some Interesting Results.—The result of our labours has been to produce what is admittedly an absolute distinct class, if not family, of roses known as the "Alex. Dickson type." We, of course, claim that the types of roses we have introduced have made a great advance on those previously in commerce. We aimed at producing a type having vigour of growth, freedom and perfectly formed, with unusually long petals, at the same time growing on bushes, the foliage of which is luxuriant and handsome. How far the varieties we have sent out have done what we claim for them, you must judge.

In our experiments, and in our struggling with the qualities we have indicated, we felt convinced that La France would prove one of the most useful parents we could possibly have, if we could succeed in making it produce seed. It was, of course, the opinion of most hybridisers that La France was sterile, and with this opinion we were for a long time inclined to agree, and, indeed, the best that could be said for it is, that there is just the possibility that it may be fertilised. Out of many hundreds of

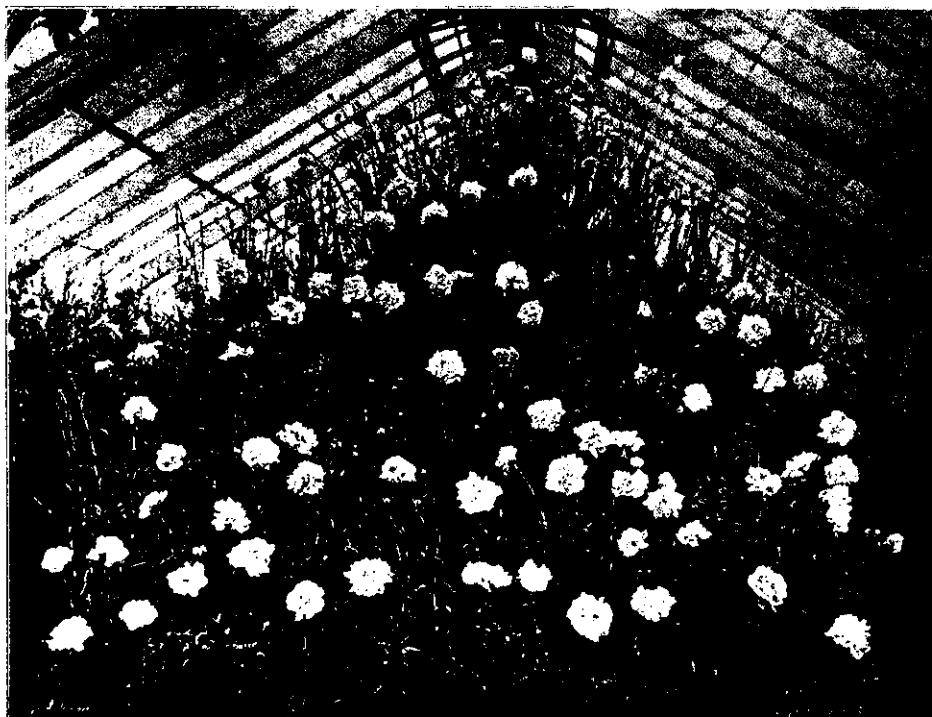


The Bothy, in which the Gardener's Staff lives at Frogmore.

defined plan of fertilisation. As a broad basis of our experiments, we took as parents such varieties as appeared to us to embody the chief elements of our ideal, and worked steadily from these. We had, of course, to experiment upon a very extensive scale, and my point will be readily appreciated when I say that we were only able to retain for

grown, and the blooms fertilized. There is then the period required to ripen the hip (and in Ireland this takes considerable time, owing to the cold and dampness of our climate). Then comes the sowing of the seed, and the attention and care during the period of germination.

Some Uncertainties.—In this respect



The Royal Gardens at Frogmore: A house containing Souvenir de la Malmaison Carnations.